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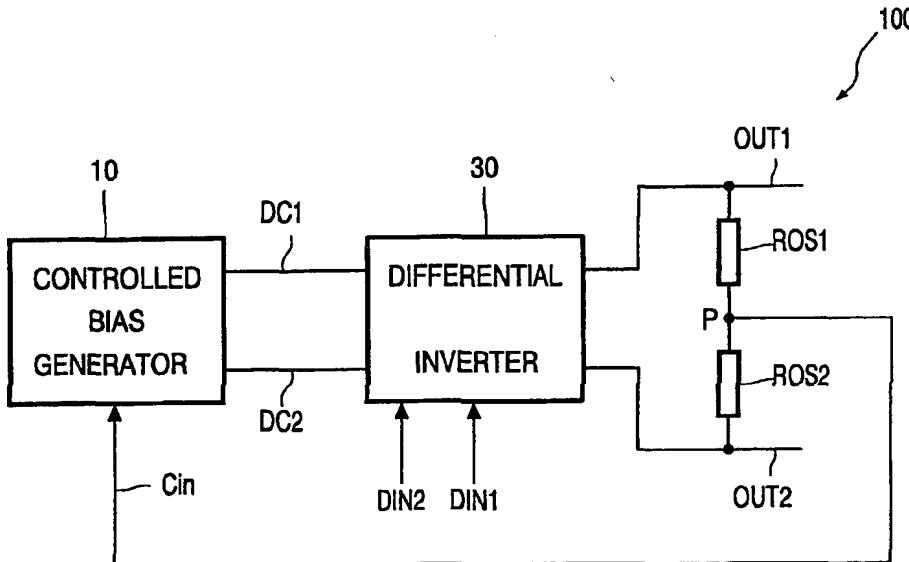
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(54) Title: DIFFERENTIAL INVERTER CIRCUIT



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(57) Abstract: A differential inverter (30) having a differential input for receiving a first input signal (DIN1) and a second input signal (DIN2), said inverter (30) further comprising a differential control input for receiving a first control signal (DC1) and a second control signal (DC2). The differential inverter further comprises a differential output for transmitting a first output signal (OUT1) and a second output signal (OUT2). The differential inverter further comprises a controlled bias generator (10) that generates the second vector of input signals in response to a bias control signal (CIN). The control bias signal (CIN) is generated at an output of a voltage divider (ROS1, ROS2) coupled to the differential output of the differential inverter (30) said bias control signal (CIN) being indicative for a DC voltage of the differential output.



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## INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
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According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
 IPC 7 H03K H03F H03B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category <sup>°</sup>	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 300 898 A (CHEN DAO-LONG ET AL) 5 April 1994 (1994-04-05) column 3, line 65 -column 7, line 40; figures 1-3 ----	1-6
X	US 5 936 466 A (ANDOH HAJIME ET AL) 10 August 1999 (1999-08-10) column 5, line 40 -column 7, line 44; figures 8,9 ----	1-3
A	US 5 818 306 A (KIM KYUNG-SOO ET AL) 6 October 1998 (1998-10-06) column 3, line 44,45; figure 2 ----	6
A	US 4 414 515 A (SUZUKI YASOJI ET AL) 8 November 1983 (1983-11-08) column 4, line 26 -column 9, line 15; figures 5-20 -----	1-6

 Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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## INTERNATIONAL SEARCH REPORT

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Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 5300898	A	05-04-1994	JP	6104638 A		15-04-1994
US 5936466	A	10-08-1999	NONE			
US 5818306	A	06-10-1998	KR	224310 B1		15-10-1999
US 4414515	A	08-11-1983	JP DE	56073919 A 3042323 A1		19-06-1981 11-06-1981